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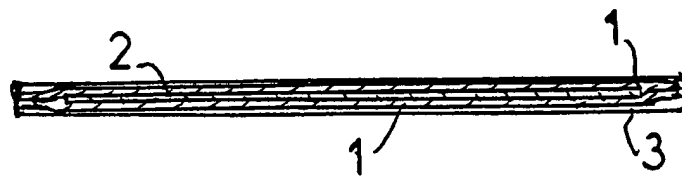
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(54) **Improvements in and relating to intumescent fire barriers and their method of manufacture**

(57) An intumescent fire barrier of relatively light weight comprises a layer of wire mesh sandwiched between sheets of ceramic fibre material each coated on at least one face with vermiculite. One or both sides of each sheet is coated with an intumescent paint which, on drying, provides a surface coating which can flex at least to a limited extent without cracking. The assembly of the wire mesh and coated fibre sheets is enveloped in one or more sheets of material having an external metallic foil surface.

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Improvements in and Relating to Intumescent
Fire Barriers and their Method of Manufacture

This invention relates to intumescent fire barriers and methods of producing the same. More especially but not exclusively, the invention concerns fire barriers in sheet form for providing fire proofing to structural members such as floors, roofs and walls.

Conventional fire barriers in sheet form are generally difficult to install because of their weight and rigidity. In addition, such barriers cannot readily be cut or shaped to follow the contours of the surface or surfaces to be protected.

The present invention sets out to provide an intumescent fire barrier which does not suffer from, or at

least alleviates, the disadvantages inherent in conventional fire barriers referred to above.

According to the present invention in one aspect there is provided an intumescent fire barrier of relatively light weight which comprises a layer of wire mesh sandwiched between sheets of ceramic fibre material each coated on at least one face with vermiculite, one or both sides of each sheet being coated with an intumescent paint which, on drying, provides a surface coating which can flex at least to a limited extent without cracking, the assembly of the wire mesh and coated fibre sheets being enveloped in one or more sheets of material having an external metallic foil surface.

Preferably both surfaces of the ceramic fibre sheets are coated with intumescent paint. Preferably this paint is that known in the trade as Pyroplas C.

The material having an external metallic foil surface is preferably a reinforced paper.

According to the present invention in another aspect, there is provided a method of producing an intumescent fire barrier which comprises the steps of coating with an intumescent paint, one or both faces of two sheets of ceramic fibre/vermiculite material applying these two sheets one to each surface of a layer of wire mesh, and enveloping the assembly of the sheets and wire mesh layer in a material having on an external surface a metallic foil.

The invention will now be described by way of example only with reference to the accompanying diagrammatic drawing in which the sole Figure is a section taken through an intumescent fire barrier in accordance with the invention.

The fire barrier illustrated comprises a sheet of wire mesh 1 sandwiched between two sheets of a material 2 such as ceramic fibrous material of intumescent membrane paper, each coated on one side with a layer of vermiculite granules. Each sheet 2 is coated on both sides with an intumescent paint which on drying produces a surface which can flex at least to a limited extent without cracking. A suitable paint is that known in the trade as Pyrolas C.

The assembly of the wire mesh layer 1 and the ceramic fibre sheets 2 is then enveloped within one or more sheets of reinforced paper 3 having an external metallic foil surface finish. The overlapping edges of the sheets 3 are held together with self adhesive foil tape.

Fire barriers as described can readily be secured by, for example, nails to timber frames and joints. In the event that the fire barrier is to be fixed to a metal frame or to a concrete ceiling, for example where the barrier is to be positioned over suspended ceilings or under raised floors, metal strips to provide anchor points for the fire barrier may be supplied. These strips may be fixed to a concrete ceiling or to a metal frame by any conventional means, e.g. masonry nails or rivets

respectively.

Fire barriers as described above may be supplied in standard sheet, these typically being six feet in length and two feet in width for under floor barriers and 1 metre wide for barriers for such items as suspended ceilings. The barriers can readily be shaped by any conventional cutting tool to any required dimension.

In use, for fitting as an under floor barrier, barriers are slid under the floor and laid with their neighbouring sides overlapping by, for example, two inches. The first and last barriers can readily be folded and fixed to the adjoining wall.

When subjected to fire, the surface foil of the fire barrier in time falls away to expose one of the two intumescent sheets 2. The intumescent content of the sheet will by that time have already intumesced into the wire mesh to prevent heat, flames and smoke generated by the fire from penetrating to the opposite side of the fire board. It is anticipated that fire barriers in accordance with the invention will have a two hour rating.

It will be appreciated that the intumescent fire barrier described above is merely exemplary of fire barriers in accordance with the invention and that modifications can readily be made thereto without departing from the true scope of the invention.

CLAIMS

1. An intumescent fire barrier of relatively light weight which comprises a layer of wire mesh sandwiched between sheets of ceramic fibre material each coated on at least one face with vermiculite, one or both sides of each sheet being coated with an intumescent paint which, on drying, provides a surface coating which can flex at least to a limited extent without cracking, the assembly of the wire mesh and coated fibre sheets being enveloped in one or more sheets of material having an external metallic foil surface.
2. A fire barrier as claimed in Claim 1 wherein both surfaces of the ceramic fibre sheets are coated with intumescent paint.
3. A fire barrier as claimed in Claim 1 or Claim 2 wherein the intumescent paint is that known in the trade as Pyroplas C.
4. A fire barrier as claimed in any one of Claims 1 to 3 wherein the material having an external metallic foil surface is preferably a reinforced paper.
5. A method of producing an intumescent fire barrier which comprises the steps of coating with an intumescent paint, one or both faces of two sheets of ceramic fibre/vermiculite material, applying these two sheets one to each surface of a layer of wire mesh, and enveloping the assembly of the sheets and wire mesh layer in a material having on an external surface a metallic foil.

6. An intumescent fire barrier substantially as herein described and as described with reference to the accompanying diagrammatic drawing.